

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims**

1. (Currently Amended)      An imaging detector assembly comprising:  
a detector array;  
a scintillator assembly positioned in communication with said detector array;  
a first collimator array optimized to shield said scintillator assembly, said first collimator array mounted to said scintillator assembly, wherein said first collimator array is comprised of an etched grid etched directly onto said scintillator array; and  
a second collimator array optimized to reduce x-ray scatter, said second collimator array mounted independently from said first collimator array.
2. (Original)      An imaging detector assembly as described in claim 1, wherein said first collimator array has a first collimator width optimized to shield said scintillator and a first collimator height with minimal effect on said x-ray scatter.
3. (Original)      An imaging detector assembly as described in claim 1, wherein said second collimator array has a second collimator height optimized to reduce said x-ray scatter and a second collimator width with minimal effect on shielding said scintillator.
4. (Original)      An imaging detector assembly as described in claim 1, wherein said first collimator array and said second collimator array are comprised of high-Z, high atomic number materials.
5. (Currently Amended)      An imaging detector assembly as described in claim 1, wherein said first collimator array is ~~comprises~~comprised of a material optimized to shield said scintillator.

6. (Original) An imaging detector assembly as described in claim 1, wherein said second collimator array is comprised of a material optimized to reduce x-ray scatter.

7. (Original) An imaging detector assembly as described in claim 1, wherein said second collimator width is less than 200 microns; and  
said first collimator width is greater or equal to said second collimator width. .

8. (Original) An imaging detector assembly as described in claim 1, wherein said first collimator array is comprised of a loaded epoxy formed directly onto said scintillator array.

9. (Currently Amended) An imaging detector assembly comprising: as described in claim 1,  
a detector array;  
a scintillator assembly positioned in communication with said detector array;  
a first collimator array optimized to shield said scintillator assembly, said first collimator array mounted to said scintillator assembly and wherein said first collimator array [[is]] comprised of a plunged electron discharge machined grid formed onto said scintillator array; and  
a second collimator array optimized to reduce x-ray scatter, said second collimator array mounted independently from said first collimator array.

10. (Canceled)

11. (Canceled)

12. (Currently Amended) An imaging detector assembly comprising:  
a detector array;  
a scintillator assembly positioned in communication with said detector array, said scintillator assembly comprised of a plurality of scintillator cells separated only by thin film reflectors;

a first collimator array optimized to shield said scintillator assembly, said first collimator array formed directly onto said scintillator assembly and said first collimator comprised of a grid etched directly onto said scintillator array; and

a second collimator array optimized to reduce x-ray scatter, said second collimator array mounted independently from said first collimator array.

13. (Canceled)

14. (Original) An imaging detector assembly as described in claim 12, wherein said first collimator array is optimized to improve the quantum detection efficiency of the imaging detector assembly.

15. (Original) An imaging detector assembly as described in claim 12, wherein said first collimator array has a first collimator width optimized to shield said scintillator and a first collimator height with minimal effect on said x-ray scatter.

16. (Currently Amended) A method of forming an imaging detector assembly comprising:

optimizing a first collimator array to generate scintillator shielding properties;  
mounting said first collimator array onto a scintillator assembly, said scintillator assembly comprising a plurality of scintillator elements, wherein mounting said first collimator array comprises etching a grid onto said scintillator assembly;

optimizing a second collimator array to reduce x-ray scatter; and  
mounting said second collimator array independently from said first collimator array, said first collimator positioned between said scintillator and said second collimator array.

17. (Original) A method of forming an imaging detector assembly as described in claim 16, further comprising:

manufacturing said second collimator array with greater tolerances than said first collimator array.

18. (Original) A method of forming an imaging detector assembly as described in claim 16, further comprising:

removing said second collimator array for use in a fourth generation imaging assembly.

19. (Canceled)

20. (Canceled)

21. (Original) A method of forming an imaging detector assembly as described in claim 16, further comprising:

separating each of said plurality of scintillator elements only by thin film reflectors; and

optimizing a first collimator width to generate an x-ray shielded portion that performs as an x-ray attenuator to reduce x-ray scatter within each of said plurality of scintillator elements.